

ABSTRACT OF THE DISCLOSURE

Methods and systems are provided for controlling the transmit spectrum in medical imaging. A combination of different delays and/or sign changes are used control the spectrum. The different delays and/or sign changes are applied across the transmit aperture. For example, a repeating pattern of three different delays in addition to focusing delays is provided, such as no additional delay, a quarter cycle advance and a quarter cycle delay. As another example, a repeating pattern is applied where one waveform has an additional delay and a sign change. The use of three or more different amounts of delay in addition to focusing delays and/or the use of delay and sign change may be used in simple unipolar or bipolar transmitters or in more complex transmitters. For example, delay is implemented with a phase shift. The combinations of delays, phase shifts and sign changes is selected to cause acoustic summation along the transmit beam with desired spectral content. By summing the waveforms in the acoustic domain, a more desired spectral content than available for any given transmit waveform is provided. For example, harmonic, second harmonic, odd harmonics, even harmonics or any other frequency bands may be suppressed.